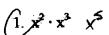


Algebra 1 Test **Exponents**

Namc '_

In examples 1-7, simplify the expressions <u>completely</u>.



$$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} 8a^3b^4 \\ 6a^2b^6 \end{array} \end{array} \end{array}$$

$$\begin{array}{c}
\cancel{\lambda} \\
\cancel{\frac{2xy^2}{3x^2y^2}} \bullet \frac{4x^2y^4}{8x^2y^2} & \frac{-8x^2y^4}{24x^2y^2} & = \frac{-1}{3x}
\end{array}$$

SIMPLIFY COMPLETELY

Rewrite the scientific notation in decimal form.

000656 WHAT

Rewrite the decimal in scientific notation.

9a.
$$(4,000,000) = (10^6)$$
 b. $.08934 = (0^{-2})$

The United States had a land area of 3.54×10^6 square miles. In 2000, the population of the United States was $2.9 \times 10^{9.1}$ What was the population density (people = 3.9 × 108 3.54 × 106 = 1,21 × 10 - 3 per square per square mile) of the United States in 2000?

$$= \frac{2.9 \times 10^8}{3.54 \times 10^8}$$

1. In 2001, 1.5 × 10⁵ United States companies spent 9.3 × 10¹⁰ dollars on research and development. What was the average amount per company spent on research and $\# \text{ Amount} = \frac{9.3 \times 10^{10}}{\text{PER}} = \frac{9.3 \times 10^{10}}{1.5 \times 10^{5}} = 1.61 \times 10^{-5}$ (company) development?

12. Which option gives the greater ending balance? a. Put \$1000 in an account that pays 6% interest compounded monthly for 10 years. b. Put \$1500 in an account that pays 5% interest compounded quarterly for 10 years. 1500 (1+ :05) = # 2465.43 13. Mike just graduated middle school and decides to put \$2000 in a savings account at 12.8 Fleet bank. The bank is paying 6% interest compounded monthly. If Mike leaves the money untouched until he graduates from UCONN, how much will he have in the account? Will he have enough money saved to buy a new Nissan Pathfinder, and explain why or why not?

3000 ()+.06/12) 96 = \$3,038.39 NISSAN YES/NO? NO, IT COSTS AT LEAST \$0,000. 14. In 2000, you bought a new car for \$30,000. Each year the value of the car decreased by 15%. What will be the value of the car in 2004? 7hat will be the value 30,000 (185) = \$15,600.19

15. A business earned 85,000 in 1995. Then its earnings decreased by 4% each year for 6 years. Write an exponential decay equation for the earnings, y, in year x. Then determine how much the business earned in 2001.

The annual NBA (National Basketball Association) earnings are given in the table. The earnings consist of ticket sales, television contracts, merchandise sales and other profitable gains. Investigate whether this data can be modeled by an exponential function.

function.		
Year	Year #	NBA Earning
1989	1	87 million
1990	2	88 million
1991	3	90 million
1992	4	93 million
1993	5 .	95 million
1994	6	98 million
1995	7	102/
	1	million
1996	8	/118
		million
1997	9	/ 129
	ļ.,	/ million `
1998	10 /	142
	‡/_	million_
1999	11 /	156
		million
2000	12	170
	1 1	million
2001	13	190
		million
3023	19	

16. Enter the data in you calculator, choose an appropriate window and make a scatter plot. Write the window settings below.

X min--|0 X max- 20 X scale- |0 Y min--|0 Y max- 200 Y scale-|

17. Do an exponential regression to find an equation that best represents your data. Write the equation below.

18. What do the first and second numbers in your equation represent? He 15+ number is my change

19. Use the equation to predict the NBA earnings for 2002? 2004?

-2001-51378 5003-180.50

